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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/686,772

10/17/2003

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11/16/2006

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EXAMINER

FIDLER, SHELBY LEE

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/686,772

**Applicant(s)**

MITSUZAWA, TOYOHICO

**Examiner**

Shelby Fidler

**Art Unit**

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6 and 14 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-13, 15 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 8/31/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

Claim 4 recites the limitation "both edge sections" in line 3. There is insufficient antecedent basis for this limitation in the claim.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 8, 9, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Izumi et al. (US6568784 B2).

#### **Regarding claim 1:**

Izumi et al. disclose a printing apparatus comprising:

a plurality of print heads (inkjet heads 30);

a moving member (carriage 17) that can be moved (col. 5, lines 28-31) and that is provided with the plurality of print heads (col. 5, lines 16-17 and Fig. 2A);

a feed mechanism (conveying roller 5) for feeding a medium (roll sheet 2) to be printed (col. 4, lines 52-57); and

a drive member (timing belt) that is connected to the moving member (17) at a connecting section (the point of contact between the timing belt along the right side of carriage

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17 and the carriage itself; Fig. 2A) and that is for driving the moving member (col. 6, lines 24-32);

wherein dots (horizontal lines) for correcting a feed amount by which the feed mechanism feeds the medium to be printed (col. 7, lines 54-58 and col. 8, lines 8-12) are formed on the medium to be printed by ejecting ink from a predetermined print head (inkjet head 30K; col. 7, lines 65-67 and col. 9, lines 25-59; since a low level output is obtained by reading a black mark, inkjet head 30K must be used to print the patterns), among the plurality of print heads, while moving the moving member (col. 8, lines 1-4), and

wherein the predetermined print head (30K) is a print head other than the print head (30Y), among the plurality of print heads, that is the furthest away from the connecting section in a direction perpendicular to the main-scanning direction (Fig. 2A).

Examiner notes that the exact location of the timing belt is not expressly disclosed in the specification, but only implicitly shown in the Figures of Izumi et al. However, according to Okawa et al., the exact location of the timing belt 130 is expressly shown in Figure 3. Since the relevant content of Figure 2A in Izumi et al. is identical to that of the Figures in Okawa et al., all the above limitations are met by the Izumi et al. reference.

**Regarding claim 2:**

Izumi et al. also disclose that the predetermined print head (30K) is the print head, among the plurality of print heads, that is the least susceptible to the vibration caused by moving the moving member (Fig. 2A shows that inkjet head 30K is closest to both the guide bars and the connecting section).

Examiner also notes that this limitation does not present any structure to the claimed apparatus, and thus provides no patentable weight to the claimed apparatus.

**Regarding claim 3:**

Izumi et al. also disclose that the predetermined print head (30K) is the print head that is located the closest to a connecting section at which the moving member (17) and the drive member (timing belt) are connected to each other (col. 6, lines 27-32 and Fig. 2A).

**Regarding claim 5:**

Izumi et al. also disclose that the dots for correcting the feed amount by which the feed mechanism feeds the medium to be printed are formed on the medium to be printed by ejecting ink from predetermined nozzles provided in the predetermined print head (col. 8, lines 12-14).

**Regarding claim 8:**

Izumi et al. also disclose that the dots for correcting the feed amount by which the feed mechanism (5) feeds the medium to be printed are formed on the medium to be printed when power is supplied to the printing apparatus (inherent to the invention of Izumi et al. since power is needed to perform the operations of col. 8, lines 15-37).

**Regarding claim 9:**

Izumi et al. also disclose that the dots for correcting the feed amount by which the feed mechanism feeds the medium to be printed are formed on the medium to be printed during a printing operation of the printing apparatus (col. 8, lines 15-37).

**Regarding claim 13:**

Izumi et al. also disclose that at least two correction amounts for correcting the feed amount by which the feed mechanism feeds the medium to be printed are obtained based on the dots formed on the medium to be printed (col. 10, lines 8-25), and wherein, based on an average value of the correction amounts that are obtained, the feed amount by which the feed mechanism feeds the medium to be printed is corrected (col. 10, lines 26-44).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Izumi et al. in view of Yoshimura et al. (US 6439684 B1).

**Regarding claim 4:**

Izumi et al. disclose all the limitations of claim 3 and the limitations that the dots for correcting the feed amount by which the feed mechanism feeds the medium to be printed are formed on the medium to be printed by ejecting ink from the predetermined print head, among the plurality of print heads, while moving the moving member (col. 8, lines 15-26 and Fig. 4).

Izumi et al. do not expressly disclose that the dots are printed on edge sections of the medium.

However, Yoshimura et al. disclose dots (line patterns P and Pa) for correcting the feed amount by which a feed mechanism feeds the medium (col. 6, lines 33-35) are printed on edge sections of the medium (Fig. 3).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize the test pattern of Yoshimura et al. into the invention of Izumi et al. The motivation for doing so, as taught by Yoshimura et al., is to adjust and control the feeding amount of a recording sheet (col. 6, lines 33-35).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Izumi et al. in view of Takemura et al. (US 5988784).

**Regarding claim 7:**

**Izumi et al. disclose all claimed limitations except** the limitation of whether or not to form, on the medium to be printed, the dots for correcting the feed amount by which the feed mechanism feeds the medium to be printed is determined according to a value of a temperature around the printing apparatus.

**However, Takemura et al. disclose** the limitation of whether or not to form, on the medium to be printed, the dots for correcting the feed amount by which the feed mechanism feeds the medium to be printed is determined according to a value of a temperature around the printing apparatus (col. 15, lines 25-37).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to print dots for correcting a sheet feed amount according to the temperature around the Izumi et al.'s printing apparatus. The motivation for doing so, as taught by Takemura et al., is that a change in speed of conveyance occurs with a change in environmental conditions (col. 17, lines 1-13).

Claims 10-12, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izumi et al. in view of Kojima (US 6905186 B2).

**Regarding claim 10:**

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**Izumi et al. disclose all claimed limitations except** that the dots for correcting the feed amount by which the feed mechanism feeds the medium to be printed are formed on the medium to be printed when the medium to be printed has been exchanged.

**However, Kojima discloses** that the dots for correcting the feed amount by which the feed mechanism feeds the medium to be printed are formed on the medium to be printed when the medium to be printed has been exchanged (col. 10, lines 7-13).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to form dots for correcting the feed amount when the medium has been exchanged in the invention of Izumi et al. The motivation for doing so, as taught by Kojima, is that the feeding distance or feeding speed deviates when the paper changes because the friction between the paper and the rollers change (col. 1, lines 39-49).

**Regarding claim 11:**

**Kojima also disclose** a detector (obvious to col. 10, lines 7-9) for detecting whether or not the medium to be printed has been exchanged (col. 10, lines 7-9);

wherein, when it has been detected by the second detector that the medium to be printed has been exchanged, the dots for correcting the feed amount by which the feed mechanism feeds the medium to be printed are formed on the medium to be printed (col. 10, lines 9-13).

**Regarding claim 12:**

**Izumi et al. disclose all claimed limitations except** that the dots for correcting the feed amount by which the feed mechanism feeds the medium to be printed are formed on the medium to be printed when a print mode of the printing apparatus has been changed.



**However, Kojima discloses** that the dots for correcting the feed amount by which the feed mechanism feeds the medium to be printed are formed on the medium to be printed when a print mode of the printing apparatus has been changed (col. 4, lines 45-46, 52-53 and Fig. 4).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to form dots for correcting the feed amount when the print mode has been changed in the invention of Izumi et al. The motivation for doing so, as taught by Kojima, is to record test patterns to detect a feeding imperfection (col. 4, lines 52-53, 58-61).

**Regarding claim 15:**

**Izumi et al. disclose all claimed limitations except** a detector for detecting whether or not the medium to be printed has been exchanged;

wherein when it has been detected by the detector that the medium to be printed has been exchanged, the dots for correcting the feed amount by which the feed mechanism feeds the medium to be printed are formed on the medium to be printed.

**However, Kojima disclose** a detector (obvious to col. 10, lines 7-9) for detecting whether or not the medium to be printed has been exchanged (col. 10, lines 7-9);

wherein when it has been detected by the detector that the medium to be printed has been exchanged, the dots for correcting the feed amount by which the feed mechanism feeds the medium to be printed are formed on the medium to be printed (col. 10, lines 9-13).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to form dots for correcting the feed amount when the medium has been exchanged in the invention of Izumi et al. The motivation for doing so, as taught by Kojima, is that the feeding distance or feeding speed deviates when the paper changes because the friction between the paper and the rollers change (col. 1, lines 39-49).

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**Regarding claim 16:**

Izumi et al. disclose all claimed limitations except that each of the plurality of print heads has a block nozzle row, a cyan nozzle row, a magenta nozzle row, and a yellow nozzle row.

However, Kojima discloses print heads (inkjet head 15) having a block nozzle row (24), a cyan nozzle row (23), a magenta nozzle row (22), and a yellow nozzle row (21).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize the printhead construction of Kojima into the invention of Izumi et al. The motivation for doing so, as taught by Kojima, is so that a full color image of one line may be printed along the main scan direction (col. 3, lines 43-45).

*Response to Arguments*

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. Please see the above rejection to Izumi et al., which discloses that the printhead for printing dots for correcting the feed amount is the printhead that is furthest away from the connecting section in a direction perpendicular to the main-scanning direction.

*Allowable Subject Matter*

Claims 6 and 14 are allowed.

Claims 6 and 14 are allowable since the prior art of record does not disclose a printing apparatus comprising a first detector for detecting a force by which the suction member sucks the medium to be printed, wherein it is determined according to an output value of the first

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detector whether or not to form dots for correcting the feed amount in combination with other features and limitations of claims 6 or 14.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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*Communication with the USPTO*


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shelby Fidler whose telephone number is (571) 272-8455. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*Shelby Fidler* 11/6/06

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